WHAT IS CLAIMED:

1. A method of producing a plastic molded object, comprising the steps of:

preparing a mold assembly including at least one transfer surface of a cavity, at least one slide cavity piece including at least one sliding surface and at least one molding surface that forms at least a part of at least one surface of the plastic molded object, and at least one metallic mold that slidably holds the at least one slide cavity piece;

heating the mold assembly to a temperature lower than a softening temperature of a molten resin;

filling the cavity with the molten resin heated to at least the softening temperature of the molten resin by injecting the molten resin in the cavity;

generating a pressure on the at least one transfer surface of the cavity, thereby bringing the molten resin into intimate contact with the at least one transfer surface of the cavity to form at least one surface of the plastic molded object;

cooling the molten resin to a temperature lower than the softening temperature of the molten resin;

during the cooling, sliding the at least one slide cavity piece toward the molten resin in the cavity by a contact-force of the at least one molding surface of the at least one slide cavity piece with the molten resin, thereby compensating for contraction of the volume of the molten resin; and

taking the plastic molded object from the mold assembly.

2. The method according to claim 1, further comprising the step of: providing that the contact-force of the at least one molding surface of the at least one slide cavity piece with the molten resin exceeds a friction force between the at least one sliding surface of the at least one slide cavity piece and the at least one metallic mold.

3. The method according to claim 1, further comprising the step of: forming the at least one slide cavity piece from a porous member.

4. The method according to claim 1, further comprising the step of: subjecting the at least one molding surface of the at least one slide cavity piece to a surface treatment to have a high contact-force with the molten resin.

5. The method according to claim 4, wherein the step of subjecting comprises forming minute concave and convex portions on the at least one molding surface of the at least one slide cavity piece by a sandblast surface treatment.

6. The method according to claim 4, wherein the step of subjecting comprising providing a coating treatment on the at least one molding surface of the at least one slide cavity piece.

7. The method according to claim 1, further comprising the step of: providing minute concave portions on the at least one sliding surface of the at least one slide cavity piece to reduce the friction force between the at least one sliding surface of the at least one slide cavity piece and the at least one metallic mold.

8. The method according to claim 1, further comprising the step of: subjecting the at least one sliding surface of the at least one slide cavity piece to a surface treatment to have a low friction force against the at least one metallic mold.

9. The method according to claim 8, wherein the step of subjecting comprises providing a coating treatment on the at least one sliding surface of the at least one slide cavity piece.

10. The method according to claim 1, further comprising the step of: forming with the at least one molding surface of the at least one slide cavity piece at least a part of at least one surface of the plastic molded object other than the at least one surface of the plastic molded object formed with the at least one transfer surface of the cavity.

11. The method according to claim 1, further comprising the step of: forming with at least two molding surfaces of the at least one slide cavity piece at least a part of one side surface of the plastic molded object other than the at least one surface of the plastic molded object formed with the at least one transfer surface of the cavity.

12. The method according to claim 1, further comprising the step of: forming with the at least one molding surface of the at least one slide cavity piece at least a part of at least one surface of a thick portion of the plastic molded object other than the at least one surface of the plastic molded object formed with the at least one transfer surface of the cavity.

13. The method according to claim 1, comprising the step of: forming the at least one molding surface of the at least one slide cavity piece as at least part of the at least one transfer surface of the cavity.

14. A mold assembly for producing a plastic molded object out of a resin, comprising:

said mold assembly defining a cavity configured to be filled with a molten resin heated to a temperature equal to at least a softening temperature of the resin and at least one transfer surface of the cavity forming at least one surface of the plastic molded object;

at least one slide cavity piece including at least one sliding surface and at least one molding surface that forms at least a part of at least one surface of the plastic molded object; and

at least one metallic mold configured to slidably hold the at least one slide cavity piece,

wherein, during a period when the molten resin in the cavity cools to a temperature lower than a softening temperature of the resin, a volume of the molten resin in the cavity contracts and the at least one slide cavity piece slides toward the molten resin in the cavity by a contact-force of the at least one molding surface of the at least one slide cavity piece with the molten resin to compensate for contraction of the volume of the molten resin.

15. The mold assembly according to claim 14, wherein the contact-force of the at least one molding surface of the at least one slide cavity piece with the molten resin is larger than a friction force between the at least one sliding surface of the at least one slide cavity piece and the at least one metallic mold.

16. The mold assembly according to claim 14, wherein the at least one slide cavity piece is formed from a porous member.

17. The mold assembly according to claim 14, comprising a surface treatment on the at least one molding surface of the at least one slide cavity piece that provides a high contact-force with the molten resin.

18. The mold assembly according to claim 17, wherein said surface treatment comprises minute concave and convex portions formed on the at least one molding surface of the at least one slide cavity piece by a sandblast surface treatment.

19. The mold assembly according to claim 17, wherein the surface treatment comprises a coating treatment on the at least one molding surface of the at least one slide cavity piece.

20. The mold assembly according to claim 14, comprising minute concave portions formed on the at least one sliding surface of the at least one slide cavity piece to reduce the friction force between the at least one sliding surface of the at least one slide cavity piece and the at least one metallic mold.

21. The mold assembly according to claim 14, comprising a surface treatment on the at least one sliding surface of the at least one slide cavity piece to provide a low friction force against the at least one metallic mold.

22. The mold assembly according to claim 21, wherein the surface treatment comprises a coating treatment on the at least one sliding surface of the at least one slide cavity piece.

23. The mold assembly according to claim 14, wherein the at least one molding surface of the at least one slide cavity piece forms at least a part of at least one surface of the plastic molded object other than the at least one surface of the plastic molded object formed with the at least one transfer surface of the cavity.

24. The mold assembly according to claim 14, wherein the at least one slide cavity piece comprises at lest two molding surfaces and the at least two molding surfaces of the at least one slide cavity piece form at least a part of one side surface of the plastic molded object other than the at least one surface of the plastic molded object formed with the at least one transfer surface of the cavity.

25. The mold assembly according to claim 14, wherein the at least one molding surface of the at least one slide cavity piece forms at least a part of at least one surface of a thick portion of the plastic molded object other than the at least one surface of the plastic molded object formed with the at least one transfer surface of the cavity.

26. The mold assembly according to claim 14, wherein the at least one molding surface of the at least one slide cavity piece includes the at least one transfer surface of the cavity.

27. The mold assembly according to claim 14, wherein the at least one slide cavity piece is interchangeable with another slide cavity piece having a different-shaped molding surface from a shape of the at least one molding surface of the at least one slide cavity piece according to an area of the plastic molded object where a sink tends to occur.